



# CALL FOR PAPERS

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## **Symposium R: Advanced Characterization of Artificially Structured Magnetic Materials**

With the use of spin-valve structures presently found in every commercially produced hard disk, manmade control of magnetic phenomena at the nanometer-length scale has come of age. Today, by artificially structuring magnetic materials in unusual configurations, we seek new magnetic phenomena for applications that extend beyond the magnetic recording industry, e.g., bio-magnetic sensors. Interest in nanomagnetism has been catalyzed by (1) advances in materials synthesis of structures whose length scales transcend magnetic length scales thereby creating materials with new magnetic properties, and (2) advances in characterization of nanomagnetism.

This symposium will provide a forum for discussions of techniques to characterize and measure structure-property relationships in nanostructured magnetic materials and will include discussions about the outlook for advances and new capabilities in this field. Presentations shall include applications of conventional and unconventional techniques to real-life problems. Such techniques will include x-ray and neutron scattering, as well as scanning probe, microscopy techniques, e.g., Lorentz microscopy, and electron holography. Papers are solicited that focus on the use and/or development of techniques and instrumentation to further our understanding of advanced magnetic materials.

Topics will include:

- Real- and reciprocal-space imaging of magnetic dots, anti-dots, clusters, domains, and measurement of collective phenomena
- Measurements of correlation lengths and time scales of magnetic structures, properties, and nanomagnetism
- Measurements of electron polarization (spin) in nonmagnetic materials and associated properties, e.g., spin decay
- Characterization of organic-magnetic interfaces, biomagnetism, and molecular magnetism
- Characterization of interfacial magnetism, exchange bias, exchange anisotropy, and proximal magnetism
- Measurements of spin and orbital moments in nanostructures
- Characterization of magnetism in bulk materials with nanometer-scale inhomogeneities
- Theoretical and modeling support for measurement and characterization of nanomagnetism

Joint sessions are anticipated with Symposia P: *Novel Aspects of Spintronic Materials and Devices*, and Q: *Magnetoelectronics—Novel Magnetic Phenomena in Nanostructures*.

**Invited speakers** (partial list) include: **B. Beschoten** (RWTH, Aachen, Germany), **C.L. Chien** (Johns Hopkins University), **M. De Graef** (Carnegie Mellon Univ.), **M. Freeman** (Univ. of Alberta, Canada), **E. Fullerton** (IBM Almaden), **B. Hillebrands** (Univ. Kaiserslautern, Germany), and **T. Silva** (NIST).

## **Symposium Organizers**

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**The 2002 MRS Fall Meeting will serve as a key forum for discussion of interdisciplinary leading-edge materials research from around the world. Various meeting formats—oral, poster, round-table, forum and workshop sessions—are offered to maximize participation.**